

Okra

Revised 2018

Thermal Properties

	English	Metric
Moisture, %	90.17	--
Protein, %	2.00	--
Fat, %	0.10	--
Carbohydrate, %	7.03	--
Fiber, %	3.20	--
Ash, %	0.70	--
Specific Heat Above Freezing	0.95 Btu/lb*°F	3.97 kJ/(kg*K)
Specific Heat Below Freezing	0.49 Btu/lb*°F	2.05 kJ/(kg*K)
Latent Heat of Fusion	129 Btu/lb	299 kJ/kg

Storage Conditions

	Fresh	Frozen	Brined
Temperature	45 to 50°F (7.2 to 10°C)	0 to -11°F (-18 to -24°C)	50°F (10°C)
Relative Humidity	90 to 95%	-----	-----
Storage Period	7 to 14 days	5 months to 1 year	3-6 months
Freezing Point	28.7°F (-1.8°C)	-----	-----

High quality okra pods are bright green, turgid, tender, and free from any blemishes. Very young pods, generally less than 1.5 inches (3.8 cm) long, and overly developed pods, generally greater than 3.5 inches (8.9 cm) long, have poor, grassy flavor and are tough and stringy, respectively. Okra must be harvested every 1 to 2 days to achieve this narrow harvest window. Avoid okra harvested in rainy weather because contact with liquid water causes pod discoloration.

Okra is sensitive to chilling injury (CI) when exposed to temperatures below 45°F (7.2°C), even briefly, which can result in discoloration, pitting, and decay. Pods should not contact ice except for retail sale and then not for longer than 48 hours or pitting and water-soaked blisters will develop. Temperatures above 50°F (10°C) allow accelerated yellowing, toughening, and decay. Relative humidity (RH) of less than 90% results in shriveling. Packing in perforated film will reduce shriveling and physical injury during handling. However, temperature control is critical because fluctuating temperatures can cause condensation within the packages, which results in surface discoloration of the pods. An atmosphere of 5 to 10% CO₂ can increase shelf life, although higher amounts are injurious.

Cooling fresh okra to its optimum storage temperature presents a problem because the pods, being highly perishable, need to be cooled quickly. However, the pods are both damaged by exposure to water or ice and also lose water easily. Forced-air cooling is the best compromise, especially for okra packed in perforated films.

Brined okra is refrigerated immediately to preserve color and flavor. It is no longer used in "low sodium" soups and other products.

Okra bruises easily, which shows as blackened spots within hours of injury. Okra containers should not exceed 30 lbs. (13.6 kg) and should be handled gently to prevent unnecessary bruising.

Freezing

Okra is more frequently a foodservice item than a retail item. It is used as a cooked vegetable in gumbo soups and Creole dishes. Tender, young pods are the only ones used, as the older pods are fibrous and woody. The stems are cut off, and the pods are blanched in steam for 2 to 3 minutes. After cooling in cold water, they are packaged and frozen.

Frozen okra requires somewhat lower freezer temperatures than most vegetables, particularly if not packaged in pouches. Thus a -5°F (-20.6°C) storage temperature is required to maintain adequate quality and to minimize weight loss and in-package desiccation for 6 months. For a full years' storage, -11°F (-23.9°C) storage is required to maintain high quality levels.

Percent Loss in Quality (Sensory Basis) for Frozen Okra					
Temperature		Months in Storage			
°F	°C	6	12	18	24
10	-12.2	48	50	56	62
0	-17.8	30	38	42	48
-10	-23.3	20	28	32	36
-20	-28.9	10	16	20	22

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